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## BETTER MILK NUMBER

¶ The Problem of Supervision of the Milk Supply in Ohio — The Extra Cost of Producing Clean Milk — Pasteurization of Milk — 30,000 Ohio Babies Form Ten Years' Harvest of Diarrhea and Enteritis — Infant Mortality Records of Ohio Cities — Model Rural Health Service in Portage County

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# The Ohio Public Health Journal

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**Pure Milk a Builder of Community Health** Pure milk is not merely a negatively "safe" factor in the public food supply. It is of great positive value also, approaching perhaps as closely as any other product to the status of the ideal food. Especially is this true when it is considered as a factor in the nourishment of children.

Every community, therefore, should take pains to develop a pure milk supply and encourage its widespread use by the public.

Impure milk, however, carries with it dangers comparable in extent to the benefits of pure milk. The list of diseases which have been transmitted by milk makes this clear. Tuberculosis, typhoid fever, scarlet fever, diphtheria, diarrhea and enteritis, septic sore throat — organisms of all these diseases thrive in milk and find it a ready agency to transmit them to their victims.

Milk may be a curse or a blessing to a community, according to its impurity or purity. It is within the power of the community to decide which kind of milk it will have. If it protects its milk supply and educates the public in the food value of milk, it is taking steps to build up a strong, healthy citizenship. If it neglects the sanitary quality of its milk it is rendering itself liable to a sudden onslaught of disease.

* * *

**Modern Milk Distribution Changes Inspection Program** The increased complexity of our milk distributing organization which has come with the growth of urban population is the cause of the present movement for statewide uniform milk regulation.

As Dr. Boudreau explains in his article in this magazine the cities which practice dairy inspection must send their inspectors far afield at heavy expense to investigate the outlying sources from which their milk supplies are collected. There is necessarily much overlapping of territory in such an inspection system.

The present proposal is for local inspection by each district health organization in accordance with uniform regulations and standards. Each district's findings would be respected in all other districts. High traveling expenses and waste of time in traveling would be eliminated, making possible more careful supervision at less cost than under the present system.

The general plan of the proposition possesses such obvious merits that it requires little argument. When the proposed uniform regulations are finally drafted and submitted to district boards of health they should receive strong support.

* * *

**The Dairyman's Responsibility for Protecting Public Health**

The dairyman is an important citizen in any community. His influence for good or bad upon the public health is as great as that of any other person. Upon his conscientious adherence to high sanitary standards depends the health — indeed, the very lives — of hundreds of children. His responsibility is a tremendous one.

The dairyman who is worthy of the community's support is the one who does not seek to evade this responsibility — who meets health officials half-way in their efforts to improve the public milk supply — who follows the most modern sanitary precepts and seeks in every possible way to guard the purity of his product.

Happily, this type of dairyman is the one met most frequently, and by the operation of the law of survival of the fittest, he is the one who will fill the biggest place in his industry in the years to come. Selling pure milk is a better business proposition than selling that of lower grade, for the public is becoming better educated daily in regard to the sanitary significance of the milk supply. The state's public health forces are seeking constantly to educate the public further toward an appreciation of the fact that the best milk supply is none too good for Ohio.

The dairymen who fall into line with this program and meet their responsibilities to the public health squarely and completely are the ones who will have the co-operation of Ohio's health authorities.

* * *

**"Quibbling"? Perhaps, but Read How Salem Paid**

The State Department of Health is sometimes charged with quibbling over points which are more important in theory than in practice. Some well-meaning physicians, for example, say the requirement of two negative cultures for release of a diphtheria patient from quarantine demands a wider margin of safety than is really necessary. Similar obstructionists stand in the way of the Department's crusade against emergency intakes, industrial cross connections and other potential sources of danger in water supply systems.

It is worth while to consider the recent typhoid fever epidemic at Salem with this idea in mind. This outbreak was the result of contamination of the water supply by sewage which entered through leaky joints in a tile pipe gravity line when pressure in the pipe became low.

The State Department of Health has been urging the abandonment of tile pipe lines as a source of danger in public water supplies. Because it could not point out a case in which such an installation had become an actual, instead of a potential, menace, its warnings have met with little response.

The Department, therefore, is sending the story of the Salem epidemic out as an object lesson to other communities which prefer to flirt with death rather than spend a little money and effort in rendering their public health safeguards as nearly 100 per cent efficient as possible.

The next time such an "accident" happens, your community may be the victim, unless you take heed now. The danger seemed remote in Salem's case, but the epidemic cost just as heavily as if it had been due to any other cause.

* * *

**Let's "Quibble" a Little Over the Milk Supply Also**

While we are on the subject of alleged "quibbling" in sanitary matters, let us strike the same note in the milk supply discussion. The danger from unsupervised milk is not present with 100 per cent uniformity. Such milk might perhaps be used with impunity ninety-nine times out of a hundred.

But it is the danger in the hundredth case against which we are urging the people of Ohio to protect themselves.

There is no more possibility of predicting when or where this hundredth case will occur than of predicting where lightning will strike. But remember this: the blow may fall in your community tomorrow or next month or next year.

All the arguments in the world against pasteurization — all the scoffing at "quibbling" sanitarians — won't console you as you mourn the loss of a loved one who falls a victim to impure milk.

It is a solemn duty, performed with no thought of sensationalism, to issue such a warning as this. The people of Ohio should consider it just as certainly and as seriously their duty to act in advance to remove the danger of impure milk.

* * *

**Good Milk the Birthright of Every Ohio Baby**

Of all the arguments for better milk supplies, the most impressive to the average man or woman is found in the long roll of babies who die each year from digestive disorders directly traceable to bad milk. Not all diarrhea and enteritis, of course, is due to milk infection, but that a large part of it is so caused is clearly seen in the statistics comparing deaths of bottle-fed with those of breast-fed infants from this disease.

Milk, the greatest factor in the little one's food supply, should be his most important source of health and strength. Too often, however, public neglect allows milk to be his greatest menace.

Every Ohio baby has the right to grow up in the most healthful environment. Is your community denying him his birthright by neglecting the purity of his milk supply?

* * *

**Ohio Health Officials Accept Challenge of Baby Death Rate**

The Columbus *Dispatch* in a recent editorial rightly refers to the 1919 infant mortality statistics, showing that nine of every one hundred babies born in Ohio died before completing its first year, as a challenge to the health authorities of the state.

For the state and local health authorities of Ohio this magazine can say that the seriousness of the challenge is thoroughly appreciated. As evidence of the baby saving work which is in progress in many localities, it points to the reduction in infant mortality rates which has marked recent years. Only a few years ago, ten baby deaths per hundred births was considered a rather low rate, a rate even above twelve per cent having been registered in 1913.

The State Department of Health is consistently preaching to local health commissioners that reduction of baby mortality is one of their primary duties. The public health nurse has been found to be one of the most important factors in a baby-saving campaign, and extension of the nursing service in the state is steadily going forward. In view of the good results obtained where reasonably adequate nursing service has been installed, one may justly say that a community's infant mortality rate is to a large extent governed by its willingness to invest public funds in salaries for nurses.

The health authorities of Ohio welcome the encouraging words of the *Dispatch,* as they will welcome the aid of it and all other newspapers in obtaining the public support which is essential to reduction both of infant mortality and of preventable disease and deaths in general.

* * *

**Public Spirited Citizens Awake to Health Needs**

The most regrettable feature of the plans for the rural health demonstration next year is the fact that two demonstrations can't be staged — one in Portage County and another in Medina County. For both counties, by the high degree of interest displayed by their citizens, certainly earned the right to be chosen as the scene of the demonstration.

Unfortunately, the very nature of the demonstration makes it necessary to concentrate in one place: duplication would destroy the intensive character of the work and mar its efficiency. So a definite, final choice

had to be made, and a slight superiority in its physical equipment for the work — principally good roads and a hospital — caused the selection of Portage County.

The Medina County citizens who had worked earnestly in advancing their claims proved as good as losers as they had been as players in the friendly contest. Their interest and advanced public spirit make it certain that they are not going to let their county slip backward in public health protection and that they will, to the best of their ability, strive constantly to improve the efficiency of their health department, profiting meanwhile by the demonstration work in the neighboring county of Portage.

The OHIO PUBLIC HEALTH JOURNAL congratulates Portage County on the opportunity for progress which its choice offers, but even more emphatically does it congratulate all the counties in the race for their good fortune in possessing citizens so awake to the public health needs of the day.

* * *

**Watch for Reports From Portage County Program**

Activities in connection with the rural public health demonstration in Portage County, it is expected, will provide texts for much material to appear in this magazine next year. In Portage County modern sanitary knowledge is to be put to the test and is to be applied to carrying out its purpose — the saving of health and life. Interesting and valuable public health history will be written in Portage County and the OHIO PUBLIC HEALTH JOURNAL will strive to convey as much as possible of this to its readers. Next year's volume should contain many really worth while contributions to public knowledge of rural public health conservation.

* * *

**Piqua and Mansfield Should Keep Up Good Work**

If the low infant mortality rates registered by Piqua and Mansfield in 1919, as reported by the American Child Hygiene Association, represent permanent improvements these cities deserve the congratulations of the entire state.

Their rates of 48 baby deaths per thousand births place them on the Association's annual honor roll of American cities with infant mortality rates under 50. It is to be hoped they will strive to continue this record and will come to be listed regularly with Brookline, Mass.; Berkeley, Calif.; Madison, Wis., and those half-dozen other places which are known as America's most healthful cities for babies.

Having once achieved this high rank, Piqua and Mansfield should be unwilling to drop backward. Their future course will be watched with interest.

# The Problem of Supervision of the Milk Supply in Ohio

**By Frank G. Boudreau, M. D., C. M., Director, Division of Communicable Diseases, Ohio State Department of Health**

**Ohio's present inadequate and non-uniform methods of milk regulation and inspection are both costly and dangerous. The improvements needed are outlined by Dr. Boudreau in this article, based on several years' study of the milk situation in the state.**

MILK is the most important item of the food supply, as far as public health officials are concerned. It is a nearly universal food, is used by persons of all ages and stations in life, and is more susceptible to contamination with disease producing organisms than any other food. Furthermore, while subject to such contamination, it conceals all evidences of danger, so that persons drinking milk containing typhoid or diphtheria organisms may not notice any peculiarity in its appearance, its taste or its odor. The dangerous qualities of milk are due to its being a perfect food, for not only will it sustain human life, but it is also a medium for the growth of nearly all germs, disease producing or harmless. Hundreds of infants die every year in Ohio because they have been fed with contaminated milk. Typhoid fever and diphtheria epidemics arise nearly every year from milk supplies which contain the germs of these diseases. This being the case, it is essential that the milk supply should be properly supervised by health departments everywhere. What is being done in Ohio to supervise the milk supply?

## Present Status of Supervision of Milk Supplies in Ohio

1. STATE —

The State Department of Agriculture maintains a dairy and food division which enforces state laws in regard to milk, and assists health commissioners to inspect dairies. The funds and personnel of this division are entirely inadequate, but, considering its limitations, much good work is done. It must be apparent to everyone, however, that supervision of the milk supply must be a local affair, and that it would be very expensive to build up a sufficiently large state force of inspectors for this purpose.

The State Department of Health has no funds for milk supervision, and is not able to do very much along this line, although it has in the past urged health commissioners to practice such supervision, and has outlined regulations and methods.

2. LOCAL —

Boards of health of city and general health districts have full power to carry on supervision of milk supplies and to enforce all reasonable regulations. City boards of health have had this power for

years. In 1917 a questionnaire was sent to every city in the state in regard to the extent to which supervision was carried on. Tabulation of the answers to this questionnaire yields the following information:

There are eighty cities in Ohio but only sixty-two answered the questionnaire. It is fair to assume that in the cities which failed to answer, no supervision of the milk supply is practiced.

In fourteen of the sixty-two cities from which answers were received, no supervision is practiced. In ten cities the health commissioner is the only milk inspector.

In twenty-six cities dairies are regularly inspected, and some laboratory tests are made.

In twenty-four cities cases of typhoid fever and other communicable diseases capable of being transmitted by milk are checked against the dairyman who supplies the family.

To summarize, in only twenty-four of eighty cities in Ohio is milk supervision at all adequate. When it is noted that in only four cities is pasteurization mandatory, it may be concluded that, in 1917 at least, very few Ohio cities had undertaken seriously to control the milk supply.

Under the provisions of the old health law, township and village boards of health made no attempt to supervise milk supplies. Under the Hughes-Griswold law health departments of general health districts have seriously considered this problem, but have been in operation for too short a time to have been able to organize bureaus of dairy inspection. At the first annual conference of health commissioners with the State Department of Health, held in May, 1920, a committee was appointed to prepare model regulations for dairies. This committee has reported, and the regulations recommended are being submitted to a number of health commissioners in the state before being made public.

### The Problem in Ohio

The situation in Ohio at the present time is not good. A few cities have modern regulations and effective bureaus of inspection. A larger number of cities have inadequate regulations and a few or no competent inspectors. In villages and townships no dairy supervision is practiced. Health departments of cities which have effective dairy supervision are required to employ large numbers of inspectors and these inspectors are forced to travel long distances. When such inspectors refuse to allow a particular dairy to sell milk in one city, the dairyman is able to dispose of his product in another city where the requirements are less severe. This may come to such a point that cities with high requirements may find it difficult to secure an adequate supply of milk, and milk may be sold in that city only at high prices. For the welfare of children and invalids it is essential that every community in Ohio should have a sufficiently large supply of pure milk at a fair price.

The problem can be solved only by having dairy regulations and milk requirements uniform throughout the state. This would

mean that a dairyman whose milk was refused by one city could not find a market for his product in another. It would mean that a smaller number of dairy inspectors would be required to supervise the milk supply in cities which are now doing effective work because they would not be required to travel such long distances, for with uniform standards there could be reciprocal inspection. It would mean that no dairyman could produce and sell impure milk anywhere in Ohio, whereas now almost any dairyman can produce and sell impure milk almost everywhere in the state. Uniform regulations would mean less expense to the dairyman, for under the present system he may be forced to comply with the demands of several inspectors from different departments, whose standards and methods may differ markedly. Dairy inspection and supervision of the milk supply will not be effective or economical until every health department in Ohio organizes a bureau of milk inspection, adopts uniform regulations and proceeds to supervise the dairy industry within its district intelligently.

Finally, a word must be said about methods. Too many departments and inspectors lay stress on equipment rather than method. It has been shown time and again that a dairyman with very poor equipment can produce a safe low count milk by paying proper attention to method. It has also been shown that expensive equipment will not give good results without the use of proper methods. Let us stress method rather than equipment. We must not lay ourselves open to the charge that inspection greatly increases the cost of milk. By intelligent inspection and thoughtful supervision pure milk can be secured without much increase in price and the good will of producer and distributor can be retained.

## TUBERCULOSIS RATE LOW IN EARLY HALF OF YEAR

The lowest tuberculosis mortality rate on record in its statistics is reported by the Metropolitan Life Insurance Company for the earlier half of 1920. The rate for white wage earners was 132.6 and for negroes 310.6. Rates for the corresponding periods in previous years were: 1919, white 150.1, colored 329.6; 1918, white 174.9, colored 422.6.

Discussing the decrease, the Metropolitan's Statistical Bulletin says:

A satisfactory explanation of the low death rate is not at this moment possible. We would suggest, however, that the improved economic condition of wage earners in recent years has probably played an important part in the change. The greater leisure, the better food, and the improved medical service which have been available in larger measure to the body of American and Canadian workers have undoubtedly had a favorable effect on health. The military service and training of the millions of young men who served in the United States and allied armies in recent years may have been a factor. The educational campaign for personal hygiene, with especial reference to the prevention of tuberculosis, which has been carried on for more than twenty years, must also be considered. The efforts of the tuberculosis movement to insure early recognition of incipient cases and the efficient treatment of the same may have had an important effect. The influenza epidemic of 1918 probably hastened the deaths of a great many advanced cases who would ordinarily have died in 1919 and 1920. But, of all these elements, we are inclined to stress most the greater diffusion of prosperity among the masses of the population.

# Milk and Dairy Inspection

## The Extra Cost of Producing Clean Milk

**By W. H. Peters, M. D., Health Commissioner of Cincinnati**

**"All bunk" is the way Dr. Peters characterizes tales of the high cost and unreasonable demands of modern milk regulations. He speaks from experience gained in the building up of Cincinnati's efficient regulatory system. His article was presented at the Conference of Health Commissioners in Columbus last May.**

EVERY community in Ohio has its milk problem, but with the exception of the larger cities, comparatively few of them have approached their problem with anything resembling a definite plan of procedure. The knowledge is slowly filtering through, but even so, there are still many who grossly underestimate the importance of milk and dairy inspection.

The secret of success in dairy inspection is to avoid overwhelming a dairyman with a multitude of orders for changes in methods and equipment. Our policy has been to take up one thing at a time and keep at it until the desired result has been obtained.

No field of public health work requires more patience, tact and educational work. The education of the public must keep pace with that of the dairyman. Sell your plan to business organizations, civic clubs, mothers' clubs, women's clubs, church and school audiences and the press.

There is a mental attitude too, that must not be slighted in matters of dairy reform. Regulations and police power are distasteful to the "honest farmer". He feels that he is lord and master over his product, hence great care and caution must be exercised in law enforcement. The producer's attitude of hostility soon gives way to one of co-operation if we can demonstrate the money value of a change in methods and equipment. Irritation has been intensified by dairy inspectors who have lacked tact and good judgment. An arbitrary bearing and lack of sympathy are the handmaids of failure and have done much to make dairy inspection unpopular. "Thou shalt!" should give way to "Don't you think it would be better and more profitable?"

Conditions are vastly different now from those of ten or twelve years ago, when the crusade for pure milk in Cincinnati was inaugurated. The marked increase in the cost of production, due to the high price of feed supplies, labor, and other economic factors, has had such a discouraging influence that every effort should be made to conserve the milk supply. This doesn't mean, however, that we should relax our vigilance.

It is our belief that the most important step in the production of pure milk should be taken at the source of supply, and for that reason all of our early efforts were directed towards securing a clean product from the producer.

The first step taken was to clean up the dairy barns and cows, build separate milk houses, eliminate wet milking, enforce the use of the covered pail, and immediate cooling of the milk.

The standard score card is an excellent yardstick for measuring sanitary conditions under which milk is produced, and all of our dairies have been rated accordingly. An advantage of the score card system is that its statements are made in mathematical terms rather than by vague and indefinite words, such as "excellent," "good" and "bad." Most dairymen are listed in the seventies, which is reasonably satisfactory.

The sanitary barn promotes the health of the herd and the cleanliness of the product, and instead of adding to the cost, is an investment which yields handsome dividends. Rotten, urine-saturated floors must be repaired and replaced. The impervious floor is a real economy, saves fertilizer, and is no burden on the producer. A stable with an impervious floor and tight ceiling minimizes dust gathering possibilities and saves labor. Windows cost money — so do cattle who die of tuberculosis from want of fresh air and sunshine. The King system of ventilation or a satisfactory equivalent, and windows, are more than compensated for by the health factor. The most vigorous critic of sanitary requirements would not defend a plan so bad as to deserve no credit for cleanliness. As a matter of fact, much of the expense incurred in making a respectable score, should be charged to ordinary decency and not to modern requirements. The removal of manure may add to the expense, but more than the added cost accrues from the sale thereof or increased crops.

Milking with clean, dry hands costs nothing. It doesn't make much difference, as far as cost is concerned, whether one buys open or hooded pails with small openings. Likewise, the thorough washing and sterilization of all utensils should be considered *an unquestioned and necessary incident to milk production.*

The economic loss from rejected bulk milk pays for the milk house, which should have smooth and tight floors, walls, and ceiling, plenty of light and ventilation, and be screened against flies. It should be used only for milk purposes. It seems hardly reasonable to include cost of spring water or ice, necessary for cooling, in the "burden" of milk production.

Interest in clean production of milk was stimulated by printing reports of chemical and bacteriologic examinations, in the *Sanitary Bulletin.* Marked copies were sent to every man whose name appeared in the report. Personal communications were dictated by the chief food inspector advising him how to make a better showing. Producers were also encouraged to subscribe for periodicals devoted to the dairy industry, and to visit other dairy farms which were conspicuously ahead of the average.

Following the clean-up in dairy surroundings, we had as our objective the installation of proper equipment for the sterilization of cans, milk bottles and cases. This, of course, affected the distributor of milk.

Bottling is expensive and it is exceedingly difficult to estimate the extra cost because we don't know where to stop. The average milk bottle lasts twenty-five or thirty

trips, which means a turn over in stock every thirty days. The washing and sterilization of bottles and cans and the washing of cases are, without question, costly, but who would want to go back to the days of dipping, when milk was exposed frequently to street dust and flies? It was not uncommon to see the driver skim off the flies that had fallen in the can while he carried the family supply in the milk cover. Bottling balances the sale of pure unadulterated milk and protects the dealer and public against unscrupulous workmen.

A regulation compelling proprietors of restaurants, hotels, etc., to serve milk in the original sealed package met with the unqualified approval of the public, and its enforcement has not been attended with a sufficient amount of opposition to make it interesting. All profit by this regulation, and the extra cost is nil.

Our early failure to enforce the tuberculin test, for the reason that the combined federal, state and municipal departments lacked man power, has been overcome to a great degree, by reason of the fact that all dairy cattle must pass the tuberculin test before they can be shipped into Ohio.

Pasteurization is an economic necessity due to changes affecting the raw material. Our regulation became effective July 1, 1914, and within a year all places were equipped. At present all milk and cream with the exception of "certified" and "inspected" milk is pasteurized by heating to a temperature of 145°F., holding at that temperature for thirty minutes and then quickly cooling to 50°F. The sealed self-recording thermometer makes pasteurization fool-proof. Thorough pasteurization, the dealers have eliminated waste and are no longer harassed by milk-borne epidemics and subsequent loss of trade.

Lack of standardization has undoubtedly added to the cost of pasteurization. This is self-evident when we think of the improvements from the flash to the various holding systems. Besides the equipment, energy and labor are the big factors in cost. For economy of operation, it is necessary to have the process as continuous as possible. One large station or a few centrally located pasteurizing plants under constant supervision of the health department, would be ideal.

The space requirements of bottling, sterilization, refrigeration, and pasteurization, have added to the cost by increasing the overhead expenses.

At present the sanitary conditions surrounding the milk industry of Cincinnati, practically exclude milk as a factor in the transmission of disease. "In the good old days" drinking milk was like a lottery from which one might draw an attack of typhoid fever, diphtheria, scarlet fever, septic sore throat or bovine tuberculosis. No claim is made that our conditions are ideal. Much remains to be done. Without passing *any* regulation, practically all plants are equipped with sterilizing equipment, clarifiers, sanitary fillers and self-recording thermometers. Past reforms have so demonstrated their value that dealers are becoming leaders in dairy hygiene. It is good business to be ahead of the game.

The mortality rate from intestinal diseases in infants under two is a most delicate index to the purity of the milk supply. The re-

sults of dairy inspection are eloquently described in the following figures:

| Year. | Dairies under inspection. | Average bacterial count. | Deaths under 2 from intestinal diseases. |
|---|---|---|---|
| 1910 ..... | 350 | 5,500,000 | 378 |
| 1912 ..... | 3,500 | 520,000 | 272 |
| 1913 ..... | 3,500 | 460,000 | 245 |
| 1914 ..... | 3,500 | 410,000 | 229 |
| 1918 ..... | 1,701 | 180,000 | 158 |
| 1919 ..... | 1,600 | 112,000 | 144 |

It is well to bear in mind that our population has increased from 364,463 in 1910 to 401,158 in 1920.

While educational factors have been at work with the same end in view, clean, pure milk has played a most important role in this reduction. The economic saving in human lives more than justifies the cost of producing clean milk.

One of the most important results of law enforcement has been the elimination of numerous retail milk dealers, the number having decreased from 426 in 1911 to 42 at the present time. Many of these were hangovers from the slop-feed period, when the production of milk was a by-product incident to the fattening of cattle for beef purposes. They were attracted by cheap dairy rations. Don't get an impression that the "little fellow" was driven out of business, for even now, 52 per cent of the dairies handle less than 200 gallons. A large number eliminated themselves by persistent violations or dairy regulations concerning adulteration, and others entered other lines of business.

All dealers in milk have been supplied with copies of our regulations. Prosecutions almost invariably follow friendly overtures and warning. Early in the game, fines imposed in police court were suspended, provided the amount was expended in making desired improvements. We found that some distributors supplied standard milk to customers on their milk routes, but fell down miserably on hotel and restaurant deliveries; others selected the Sabbath for orgies of dishonesty on the principle "the better the day, the better the deed." The price they paid is a reminder to "remember the Sabbath and keep it holy."

We find it very profitable to take samples from shippers. In this way our attention is immediately directed to faulty methods and adulterations. No calling has a membership made up entirely of honest men. That would be too exclusive. There are still a few left who believe that they can escape detection because their product goes into a composite milk.

We have made no attempt to discuss, in a dogmatic manner, the added expense of producing clean milk but rather to offset the exaggerations and vague generalities which are published from time to time about the oppressive and unreasonable demands of milk and dairy regulations. This is all bunk. As a matter of fact, no new regulations have been introduced in Cincinnati since the first of July, 1914, at which time pasteurization became effective, and as I said before, all dealers were equipped within a year. The price of milk continued at eight cents per quart until September, 1916.

We have not discussed the difference between dirty milk and clean milk — that question admits of no

discussion. Quality as applied to milk means more than chemical composition. It includes safety.

Clean pasteurized milk, the exclusive diet of infants, children and invalids, is an economy at several cents above the ordinary and cheap insurance against milk-borne diseases.

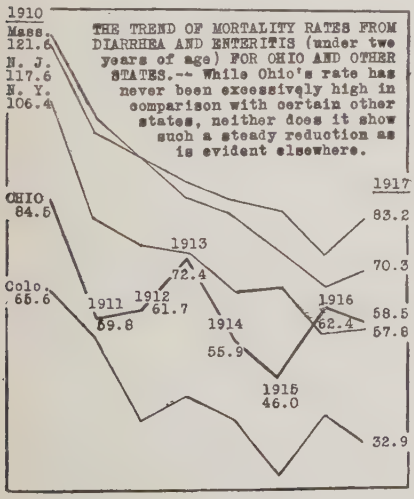
The per capita cost for milk and dairy inspection, including the collection and laboratory work of milk samples, is a little more than three cents. This is a little less than the average city in the United States spent two years ago, as determined by the United States Department of Agriculture, in a survey made by Mr. Ernest Kelly, in charge of market milk investigations.

The propaganda for the production of clean milk in Ohio must become statewide. Standard methods should be employed for law enforcement.

An expert veterinarian with a comprehensive knowledge of every angle of the milk industry, is essential to success. He must be a free lance and courageous, for he needs that qualification to place "the fear of God" in the hearts of that small minority whose rascally actions lower the whole tone of the industry.

# 30,000 Ohio Babies—Ten Years' Harvest of Diarrhea and Enteritis

STATISTICS of deaths of babies from diarrhea and enteritis give a vivid idea of the cost of impure milk supply to Ohio. During the ten years from 1910 through 1919, nearly thirty thousand children under two years of age died from this disease.


THE TREND OF MORTALITY RATES FROM DIARRHEA AND ENTERITIS (under two years of age) FOR OHIO AND OTHER STATES.-- While Ohio's rate has never been excessively high in comparison with certain other states, neither does it show such a steady reduction as is evident elsewhere.
1910
Mass. 121.6
N. J. 117.6
N. Y. 106.4
OHIO 84.6
Colo. 68.6
1911 69.8
1912 61.7
1913 72.4
1914 55.9
1915 46.0
1916 62.4
1917 83.2
70.3
58.5
57.6
32.9

Impure milk was responsible for perhaps one-half of this heavy total. Thousands of Ohio's homes are saddened today because of public neglect of the fundamental food supply of the state's children.

Here are the statistics which tell the sad story — with the yearly totals grouped into cities and rural districts:

| *Year* | *State Total* | *Cities* | *Rural* |
|---|---|---|---|
| 1910 ..... | 4,037 | 2,457 | 1,580 |
| 1911 ..... | 2,896 | 1,801 | 1,095 |
| 1912 ..... | 3,025 | 2,029 | 996 |
| 1913 ..... | 3,595 | 2,245 | 1,350 |
| 1914 ..... | 2,808 | 1,838 | 970 |
| 1915 ..... | 2,339 | 1,556 | 783 |
| 1916 ..... | 3,212 | 2,104 | 1,108 |
| 1917 ..... | 3,048 | 2,060 | 988 |
| 1918 ..... | 2,722 | 1,707 | 1,015 |
| 1919 ..... | 2,212 | 1,427 | 785 |
| Total, 10 yrs. | 29,894 | 19,224 | 10,670 |

# Pasteurization of Milk

**By A. O. Peters, M. D., Health Commissioner of Dayton**

**In this paper, read at the Conference of Health Commissioners last May, Dr. Peters explains, on the basis of his experience in Dayton, the beneficial effects of pasteurization and answers the stock arguments against pasteurization. Pasteurization, he says, does not increase the cost of a community milk supply and is the only way of safeguarding it.**

A COMMUNITY is but an aggregate of individuals, and the problems of safeguarding a community's health are but a multiplication of the problems of safeguarding the health of a single person. It is just as necessary that the entire milk supply for a city be safe as it is for a certain individual to have safe milk.

The elaborate systems used in some cities for grading milk result in many instances that the poorer people buy poorer grades of milk. There is no good reason for allowing any unsafe milk to be sold. The only way to standardize the entire supply for a city is by pasteurization. The requirement in Dayton is that all milk except that from tuberculin tested cows must be pasteurized. This is the only sensible classification for grading milk.

Successful health work is but the practical application to a community's problems of the principles of the practice of medicine. In considering the safety of a milk supply, one must consider the effects of impure milk upon an individual. There are three main elements that contribute to a dangerous milk:

1. Pathogenic bacteria from the cow.
2. High bacterial content.
3. Contamination in handling.

It is well recognized that tuberculosis can be transmitted from animals to man by infected milk. In testing many herds for tuberculosis, it is often found that as many as twenty-five percent of the cows are infected. Of course only a small number of these have open lesions and thus infect the milk. But if one cow does give infected milk, there is danger from the entire product of the herd. This fact, coupled with the generally accepted theory that the main avenues for tubercular infection in man are the tonsils and the gastro-intestinal tract, makes it extremely important that such milk be pasteurized. Other diseases that may be transmitted from animal to man are anthrax, foot and mouth disease and Malta fever.

Regarding the second point, high bacterial content: Dayton, fairly representative of all cities, gets its milk supply from one thousand farms, some as far as sixty miles from the city. By the usual means of transportation, it is impossible to keep milk from having a high bacterial content. This kind of milk, though it may contain no pathogenic germs, is extremely dangerous for children and not safe for adults. The presence of many bacteria in milk causes much gastro-intestinal irritation. So, even if the herds producing this milk were tested for tuberculosis and the infected cows removed from the herds, this would not render

the milk safe. Only pasteurization can do this.

Regarding the third point, contamination in handling: Milk brought for a considerable distance and handled by a number of people is very apt to become a carrier for the germs of typhoid fever, diphtheria, scarlet fever, septic sort throat, tuberculosis and other diseases. Inspection of the dairies and physical examination of the handlers of milk can not be thorough enough to be a protection from such contamination. Only pasteurization can afford this protection.

### Results of Pastuerization

The results of pasteurization are:

1. Reduction of the bacterial content.
2. Improved keeping qualities.
3. Protection from careless and diseased handlers; unsafe milk is rendered safe, but impure milk is not rendered pure.

Considering all the above, it is readily seen that no raw milk is absolutely safe unless possibly that of which the production and distribution are accompanied by such elaborate safeguards as are required in the production of certified milk. Even in the routine accompanying the production of certified milk, as we have found, there are loopholes through which danger often enters. The only way to safeguard an entire city supply is by pasteurization.

### Methods of Pasteurization

As to the methods of pasteurization, it is generally accepted that only the holding process is efficient. The Dayton ordinance, like many others, requires the milk to be held at or near 145°F. for thirty minutes, then rapidly cooled to below 50°F. The flash system is universally condemned.

The ideal way of pasteurizing would be in the ultimate containers, but no practical system for this has ever been devised. However, with modern machinery including automatic capper, there is little danger of contamination of the milk after it has been pasteurized.

### Objections to Pasteurization

There are two main objections emphasized by those who are opposed to pasteurization:

1. Expense.
2. Reduced food value.

As to the expense: The United States government published a report two or three years ago in which it was claimed that pasteurization adds but one-tenth of one cent per gallon to the expense of milk production and distribution. This, no doubt, is much too low an estimate for the small producer or distributor. The total expense, however, including overhead, depreciation of equipment, etc., will not exceed two cents per gallon for the average plant.

This expense is entirely offset by the improvement in the keeping qualities of the milk. On account of the improved keeping qualities of the milk and the different methods of distribution usually accompanying pasteurized milk, the distributor is relieved from making more than one delivery per day. Also, on account of the same fact, the distributor loses very much less on account of souring. As a community proposition, therefore, pasteurization should add nothing to the cost of the milk to the consumer.

Considering the second objection, supposed reduction in food qualities: We have to take into consideration the effect of pasteurization upon those mysterious substances known as vitamines. It is well known that these bodies are essential to health and especially important for the proper growth of young children. Elaborate experiment has demonstrated that the vitamine content of milk is considerably affected by heating to the temperature necessary for pasteurization. The vitamines are not entirely destroyed but are very much reduced. It is important, therefore, in feeding pasteurized milk to infants that some food rich in vitamines, such as orange juice, be added to the diet. When this is done the physical development of the child is not retarded in any way.

Minor objections made to pasteurization such as the contention that the milk will deteriorate more rapidly after pasteurization, that the cream line is destroyed, etc., are not real objections but only the result of improper methods.

The objections to pasteurization are unimportant compared to the great benefits derived from it.

### Conclusion

Pasteurization, however, cannot replace cleanliness in the production and distribution of milk. As pointed out above, milk that has become impure can never be purified. It is therefore important that inspection of dairies and supervision of all the steps in handling milk be rigid. To have a supply of pure milk for a city this is imperative.

The role of pasteurization then is to supplement, not to replace, the well established methods of regulating the production and distribution of milk.

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# Two Ohio Cities Achieve Low Infant Mortality Rates in 1919

INFANT MORTALITY statistics for American cities in 1919, as contained in the annual compilation of the American Child Hygiene Association, give interesting data regarding Ohio municipalities. Especially notable are the 1919 rates recorded for Piqua and Mansfield — 48 deaths under one year of age for each thousand births in each case, placing these cities on the Association's "honor roll" of nine municipalities with rates under 50.

Thirty-seven Ohio communities are among the 269 cities covered in the study. Statistics for 1919 are based upon reports submitted by municipal health officers

Only six of these Ohio cities failed to register infant mortality rates for 1919 which were lower than the average for the years from 1911 to 1915, inclusive. These six were Akron, Elyria, Massillon, Sandusky, Springfield and Tiffin.

Cleveland, Toledo and Youngstown, among the large cities, continued their steady improvement. Columbus and Cincinnati regained the losses which they had sustained in 1918 and registered 1919 rates about the same as those of 1917. Dayton's rate for 1919 was about the same as that of the previous year, which compared favorably with those of other large cities.

| City. | Deaths under one year. | | | | | Infant Mortality Rate. | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | Avge. 1911–1915 | 1916 | 1917 | 1918 | 1919 | Avge. 1911–1915 | 1916 | 1917 | 1918 | 1919 |
| Akron | 255.8 | 441 | 508 | 474 | 531 | 110.4 | 118 | 112 | 102 | 114 |
| Alliance | 35.6 | 44 | 49 | 49 | 43 | 103.4 | 100 | 101 | 97 | 91 |
| Ashtabula | 48.2 | 45 | 51 | 46 | 43 | 94.8 | 78 | 89 | 83 | 72 |
| Bellaire | 46.8 | 53 | 44 | 54 | 36 | 148.0 | 132 | 104 | 139 | 101 |
| Cambridge | 30.6 | 25 | 29 | 36 | 34 | 120.2 | 79 | 88 | 116 | 113 |
| Canton | 119.2 | 170 | 191 | 151 | 169 | 113.4 | 107 | 100 | 75 | 88 |
| Chillicothe | 30.0 | 30 | 29 | 35 | 33 | 103.8 | 100 | 88 | 91 | 92 |
| Cincinnati | 739.2 | 736 | 688 | 823 | 610 | 97.4 | 98 | 88 | 104 | 88 |
| Cleveland | 1,836.6 | 2,028 | 2,208 | 2,026 | 1,743 | 125.8 | 109 | 109 | 98 | 91 |
| Columbus | 358.2 | 392 | 386 | 449 | 405 | 102.8 | 89 | 88 | 101 | 89 |
| Dayton | 277.2 | 308 | 318 | 286 | 278 | 102.4 | 100 | 96 | 87 | 88 |
| East Liverpool | 62.4 | 65 | 54 | 58 | 44 | 262.6 | 187 | 107 | 120 | 102 |
| Elyria | 30.8 | 48 | 41 | 48 | 49 | 98.4 | 111 | 107 | 95 | 107 |
| Findlay | 23.2 | 24 | 14 | 21 | 20 | 85.0 | 72 | 47 | 66 | 69 |
| Hamilton | 74.4 | 74 | 99 | 93 | 79 | 102.0 | 83 | 108 | 106 | 99 |
| Ironton | 31.2 | 38 | 41 | 53 | 40 | 184.2 | 164 | 152 | 160 | 139 |
| Lakewood | 41.6 | 44 | 50 | 54 | 58 | 126.2 | 71 | 76 | 70 | 85 |
| Lancaster | 20.0 | 16 | 23 | 19 | 24 | 107.0 | 46 | 77 | 59 | 83 |
| Lima | 68.2 | 80 | 75 | 100 | 63 | 135.6 | 109 | 85 | 98 | 72 |
| Lorain | 116.4 | 150 | 108 | 128 | 108 | 151.2 | 159 | 102 | 131 | 95 |
| Mansfield | 38.4 | 47 | 46 | 51 | 26 | 91.0 | 82 | 91 | 86 | 48 |
| Marietta | 22.6 | 30 | 16 | 20 | 23 | 87.4 | 118 | 57 | 68 | 83 |
| Marion | 39.0 | 41 | 50 | 60 | 46 | 163.6 | 83 | 84 | 106 | 91 |
| Massillon | 22.2 | 25 | 31 | 30 | 39 | 77.6 | 79 | 92 | 75 | 108 |
| Middletown | 49.8 | 82 | 64 | 82 | 50 | 99.8 | 134 | 103 | 120 | 72 |
| Newark | 53.6 | 57 | 63 | 47 | 39 | 132.2 | 115 | 113 | 92 | 80 |
| Norwood | 23.2 | 27 | 30 | 20 | 22 | 82.0 | 85 | 89 | 64 | 72 |
| Piqua | 25.2 | 18 | 26 | 26 | 15 | 126.8 | 67 | 83 | 79 | 48 |
| Portsmouth | 74.8 | 88 | 99 | 100 | 75 | 142.6 | 129 | 128 | 130 | 105 |
| Sandusky | 37.0 | 25 | 36 | 31 | 41 | 100.6 | 63 | 80 | 65 | 101 |
| Springfield | 89.2 | 98 | 110 | 132 | 103 | 90.0 | 82 | 86 | 103 | 95 |
| Steubenville | 101.0 | 108 | 114 | 113 | 77 | 219.8 | 200 | 174 | 176 | 122 |
| Tiffin | 18.2 | 18 | 21 | 22 | 20 | 82.2 | 70 | 72 | 78 | 87 |
| Toledo | 446.8 | 593 | 542 | 519 | 429 | 110.0 | 109 | 95 | 94 | 90 |
| Warren | 24.8 | 40 | 40 | 65 | 51 | 86.4 | 92 | 80 | 95 | 81 |
| Youngstown | 368.0 | 439 | 508 | 523 | 385 | 191.0 | 156 | 147 | 126 | 99 |
| Zanesville | 67.8 | 66 | 58 | 66 | 57 | 153.8 | 116 | 94 | 102 | 96 |

East Liverpool and Lorain, in addition to Youngstown, show results which demonstrate the possibilities in reduction of infant mortality in industrial centers, both producing in 1919 rates under 100 for the first time. Steubenville's rate continues high, despite the moderate reduction which has been achieved in recent years.

The group of cities with rates under 75, in addition to Piqua and Mansfield, includes Ashtabula, Findlay, Lima, Middletown and Norwood. Fairly consistent decreases mark the past records of these cities, especially noteworthy being those of Lima and Middletown, which have come from abnormally high rates to the present low levels. Newark, while its 1919 rate was slightly over the 75 mark, is also worthy of mention in this connection, having progressed from an average of 132.2 for the period 1911-15 to 80 in 1919.

# The 1920 Christmas Seal Campaign

**December 1 Set as Opening Date for Sale. Goal Is Ten Cents Per Capita to Support Voluntary Public Health Organizations**

IN common with every other state in the Union, Ohio is preparing for the annual sale of Christmas seals to combat tuberculosis. Seals go on sale in every county in the state beginning December 1. There will be an intensive campaign during the first ten days of December, the seals remaining on sale up until Christmas.

Ohio last year purchased approximately 20,000,000 seals — the best record in the history of the fight against tuberculosis in the state. Every community which sold its quota of seals was enabled to carry on during the year very effective public health work. In some cases it was the local society for the prevention of tuberculosis and in others local public health leagues and school organizations. This year many new public health leagues have been formed and are planning to finance the health activities for the coming year on a much broader scale.

The Ohio Public Health Association, which will act as the state agency in the sale of seals this year expects the campaign to give impetus to the organization of local health leagues. The goal for 1920 is ten seals per capita or ten cents from each person in the state as a contribution to the cause of good health.

The seal this year will display the double-barred tuberculosis cross instead of the Red Cross. While the emblem of the Red Cross has been withdrawn from the seal, Red Cross officials will give the campaign their moral support. Dr. Livingston Farrand, chairman of the central committee of the American Red Cross, in a letter to the National Tuberculosis Association, says: "The Red Cross not only extends its best wishes for the great success of the seal, but would hope to co-operate to that end in every practical way." In many instances local Red Cross Chapters will have Christmas seal committees to conduct the sale of seals.

This is the design of the 1920 Christmas seal which will go on sale in Ohio December 1st. This year the seal displays only one emblem, the double-barred cross, now recognized the world over as the insignia of the great crusade against tuberculosis.

School teachers and pupils are manifesting more than usual interest in the campaign this year because of the fact that funds derived from the sale of these tiny emblems of holiday cheer will be used to carry on the Modern Health Crusade and other health activities in the schools.

There is a crying need in every community of Ohio for more nursing service and more sanatoria. Official boards in charge of institutions are hampered by tax limitations and demands for other governmental functions, leaving much work for the voluntary health agencies to perform.

# A Model Rural Health Service

## Plans for Developing and Demonstrating It in Portage County

PORTAGE COUNTY, Ohio, next year, as the scene of the demonstration of rural health service announced some time ago by the State Department of Health, will be the center of public health attention from all over the country. The most modern theories of public health administration will be applied in a practical way in Portage County and the model public health program for a rural county will be worked out.

The work, it is expected, will be watched with interest by health officials in Ohio and other states and many of them will visit Portage County to view the demonstration at close range. Ohio health commissioners will be encouraged to study the demonstration and to apply in their own districts the lessons learned there.

The principal points in the program outlined for the demonstration are these:

1. The demonstration is planned to give Ohio health commissioners an opportunity to observe and study a really efficient rural health department. At the present time a health commissioner who wishes to study rural health work must observe one phase in this county, another in a second county and a third in still another county.

2. The demonstration will not be full fledged from the start. The first step will be to extend the public health nursing service until it is complete; the second, to provide for complete physical supervision of all school children, including the correction of all correctible defects; the third will consist of a pediatric service, so that no infants in the county will be without the best nursing and medical attention. Other branches of work will be taken up as the demonstration gains momentum. Of course it is understood that the ordinary work of a health department such as the prevention of communicable diseases and the enforcement of sanitary measures will be carried out with great care.

3. The demonstration is essentially a local piece of work. It will be carried on by the local health department with the assistance and advice of the State Department of Health. The county will supplement the budget of the health department sufficiently to carry on the proposed work.

When the State Department of Health first announced its plans for the demonstration, fifteen counties asked to be considered as possible locations. After due consideration had been given to all applicants, the choice narrowed down to Portage and Medina counties. The high degree of public spirit manifested by residents of both counties in urging their respective claims made the final choice difficult, but superiority of roads and other means of transportation and possession of hospital facilities caused Portage to be picked after careful study.

# PUBLIC HEALTH NOTES FROM OVER THE STATE

## Polluted Water Causes Typhoid

Pollution of the Salem city water supply by sewage which entered through leaks in a tile pipe line conveying water from wells to the pumping station caused the outbreak of more than 6,000 cases of enteritis and more than 600 cases of typhoid fever reported there in October and early November, according to investigations conducted by the State Department of Health.

As soon as the outbreak of enteritis, in the middle of October, caused suspicion to fall upon the water supply, the state health authorities made bacteriological tests of the water and found evidence of contamination.

Two hours after this report, an engineer left for Salem, taking with him the chlorine disinfection apparatus which the Department keeps on hand for emergency purposes. Arriving at Salem on the morning of October 18, he had the machine in operation by 3 p. m., disinfecting the water supply of the city. Residents of the city were advised to boil the water. Anti-typhoid vaccine was supplied by the State Department of Health.

City officials were instructed to abandon the tile pipe line, which had been installed in the years before approval of public water supply systems by the State Department of Health was required. These orders have been carried out, the Department has been informed, and water is being pumped through a new line into the distributing system.

"The Salem experience demonstrates the importance of safeguarding a city water supply against every possible source of contamination, however remote the danger may appear to be," said a statement issued by the State Department of Health.

"Numerous other cities in the state have similar weak points in their water supply systems and might at any time be victims of an outbreak such as occurred in Salem. With its limited staff and funds, the State Department of Health can not possibly make a detailed study of every water system in the state. It therefore is the duty of every community to study its own situation and eliminate such dangerous features as leaky gravity lines, cross-connections with industrial water supplies, well covers not sealed against surface contamination and emergency intakes from impure sources."

## Kentuckians Import Trachoma

The belief of health authorities that the Kentucky mountains are the source of much of the trachoma in Ohio received support when a trachoma survey was made at McGuffey, in the so-called "onion" district of Hardin County. Thousands of Kentuckians come to work in the onion fields there every summer, often bringing the entire family. Nearly one-fourth of the persons examined in that district had trachoma. Most of the cases were among Kentuckians but the disease has also spread to a limited extent among natives of Hardin County.

It is believed that the frequency of the disease in Kentucky also accounts for its relatively high prevalence in the extreme southern counties of Ohio.

## 1,800 Diphtheria Tests in Month

Examinations for diphtheria made in the laboratories of the State Department of Health in October showed a sharply increased total, in comparison with those of preceding months. The totals for July, August, September and October were, respectively, 466, 500, 850 and 1,837. Only 446 of the October tests showed positive results, the number of negative findings, it is presumed, being increased by better observance of the rule permitting release of a diphtheria patient from quarantine only when recovery is established by two negative cultures.

Wassermann examinations in October numbered 2,862, approximately the average monthly total in recent months. Typhoid examinations, 372 in number, showed a slight increase over September.

## Milk-Borne Typhoid at Piqua

Fifty-nine cases of typhoid fever reported in Piqua in September were traced to the milk supplied by a certain dairy in the city. Inspection of the dairy showed that the well supplying its water

was subject to contamination from leaks in a sewer pipe only three feet away; that city water, known to be of unsafe quality, was also used at the dairy; that bottles were not properly sterilized and that milk after pasteurization was not properly protected against flies.

The report filed by the investigator sent to Piqua by the State Department of Health calls attention to the failure of the city board of health to provide for milk inspection, to require proper methods of pasteurization and milk handling, to forbid use of the city water supply at dairies and to compel screening of dairies.

## Clinic Activities in September

Eight hundred and sixty-one venereal disease patients received free treatment at Ohio clinics in September, according to reports compiled in the State Department of Health. Of these patients 621 were males and 240 were females. According to diseases, the totals were: Syphilis 420, gonorrhea 398, chancroid 43. Treatments given numbered 11,636. One male and sixty-one female cases were placed in detention.

## New Health Literature

Attention is called to the following recent publications of the State Department of Health, all of which are issued for free distribution:

Health Education Bulletin 120 — Scarlet Fever: Its Restriction and Prevention. A revised edition of this publication, taking note of recent changes in the regulations the control of scarlet fever.

Health Education Bulletin 125 — How Any Boy Can Keep Fit. A revision of the former pamphlet, "How Any Boy Can Develop His Health and Strength," with illustrations added; one of the Department's series of social hygiene publications.

Educational Circular 122 — Ohio's Service to the Community — State Department of Health. One of a series of uniform leaflets issued by several Ohio state departments, outlining the service they offer.

# VIEWS OF THE PRESS ON PUBLIC HEALTH

## For the Baby

Health officials in Cleveland, in cooperation with the Hospital Bureau of the State Health Department, are inspecting maternity hospitals to see that all are properly conducted.

Investigations so far show that several institutions have failed to comply with state requirements. Reports of investigators show that adequate care is not given either mother or baby at some of these places.

Every baby has the right to be well born. The death rate among babies is appalling even under most favorable conditions. The closing of institutions that do not measure up to all requirements for the protection of mother and baby is the least that can be done in present circumstances.—*Cleveland Press.*

## A Challenge

A challenge comes to the health authorities in Ohio in the report given out at Washington last week that out of every one hundred babies born in this state in the year 1919, nine died before they completed their first year—a challenge that should be met with means and measures that will result in better reports in this matter from now on.

The flame of life is feeble at the beginning and at the end, and it is in the first few years and in the sunset years of life that death takes the heaviest toll. The old can not hope to lengthen out their days greatly at best, but the hope of the world is bound up in our children. Work that is calculated to give the baby a good start on the circle of life, has a decidedly greater appeal than work that has to do with the mending of a human machine that is almost worn out.

Ohio can make a better showing than this, and the fact that our record as given above is not so good by far as the average in the registration area of the nation, is proof of it. What others can do, we can do; in fact it must be our aim to excel. Of course Ohio is not going to be satisfied with her record, and a campaign for saving the babies must be planned and pushed with vigor.—*Columbus Dispatch.*

# Cause—

# Bad Baby Milk Mortality

# —and Effect

Does this tell the story of your town?